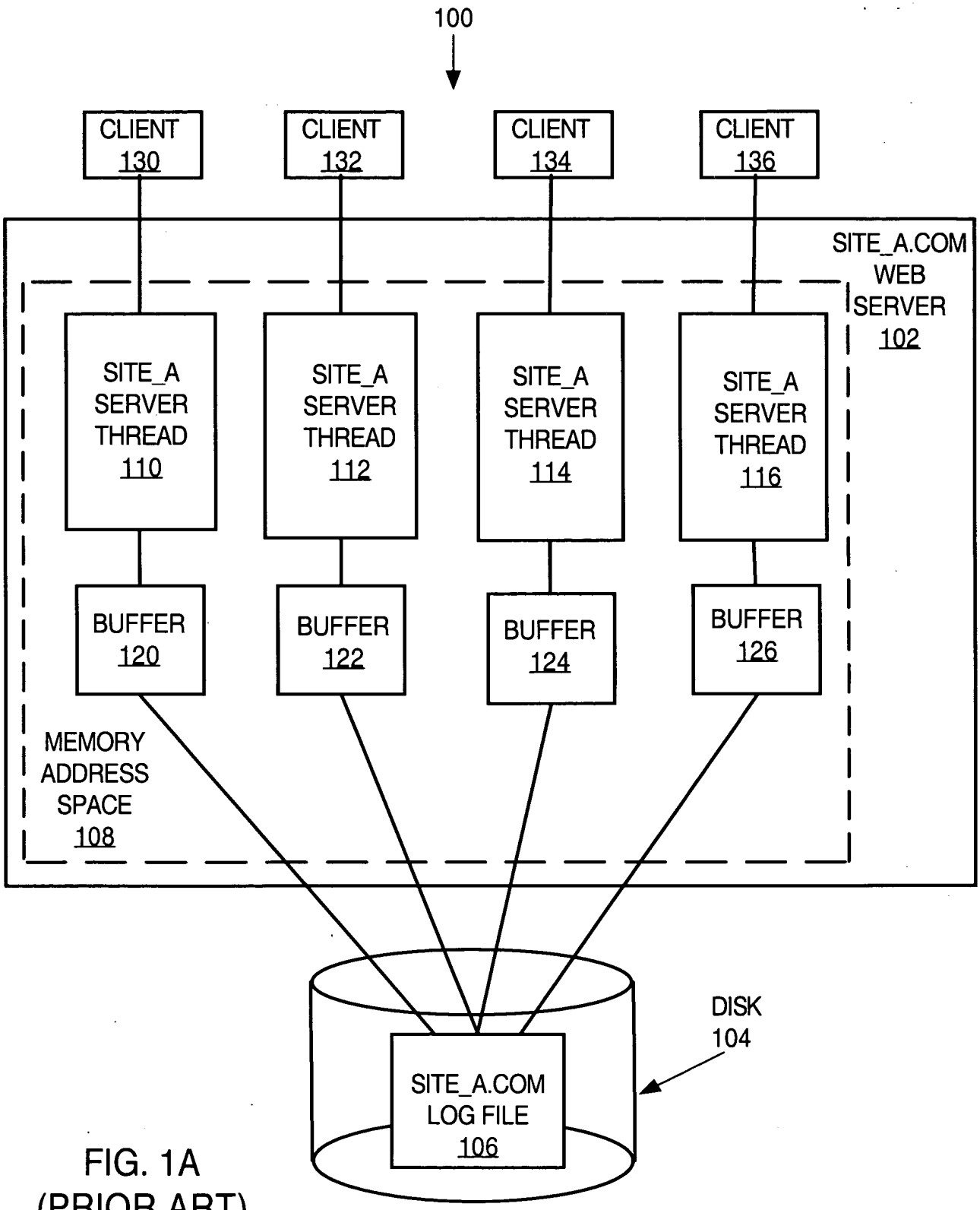

FIG. 1A
(PRIOR ART)

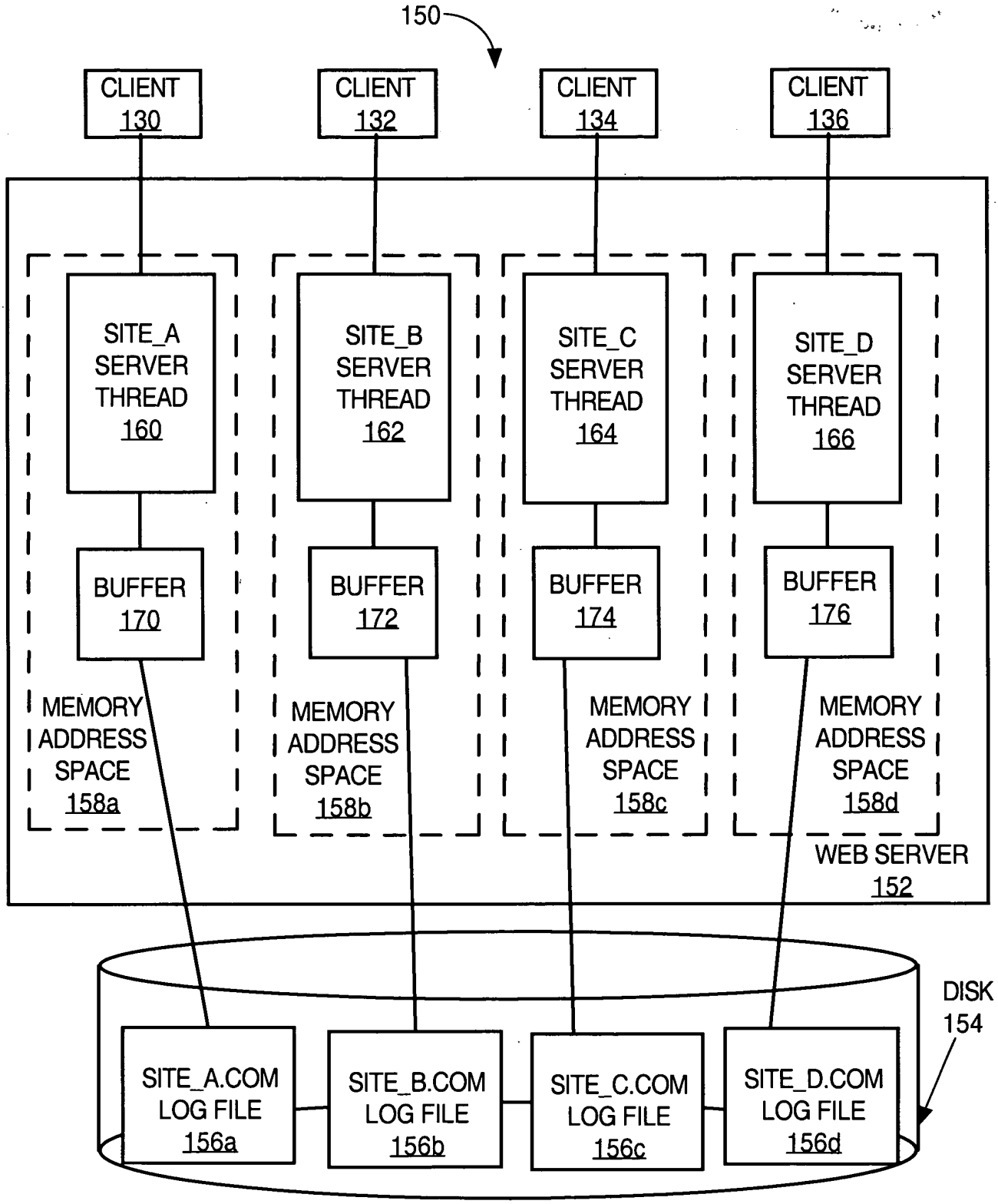

FIG. 1B
(PRIOR ART)

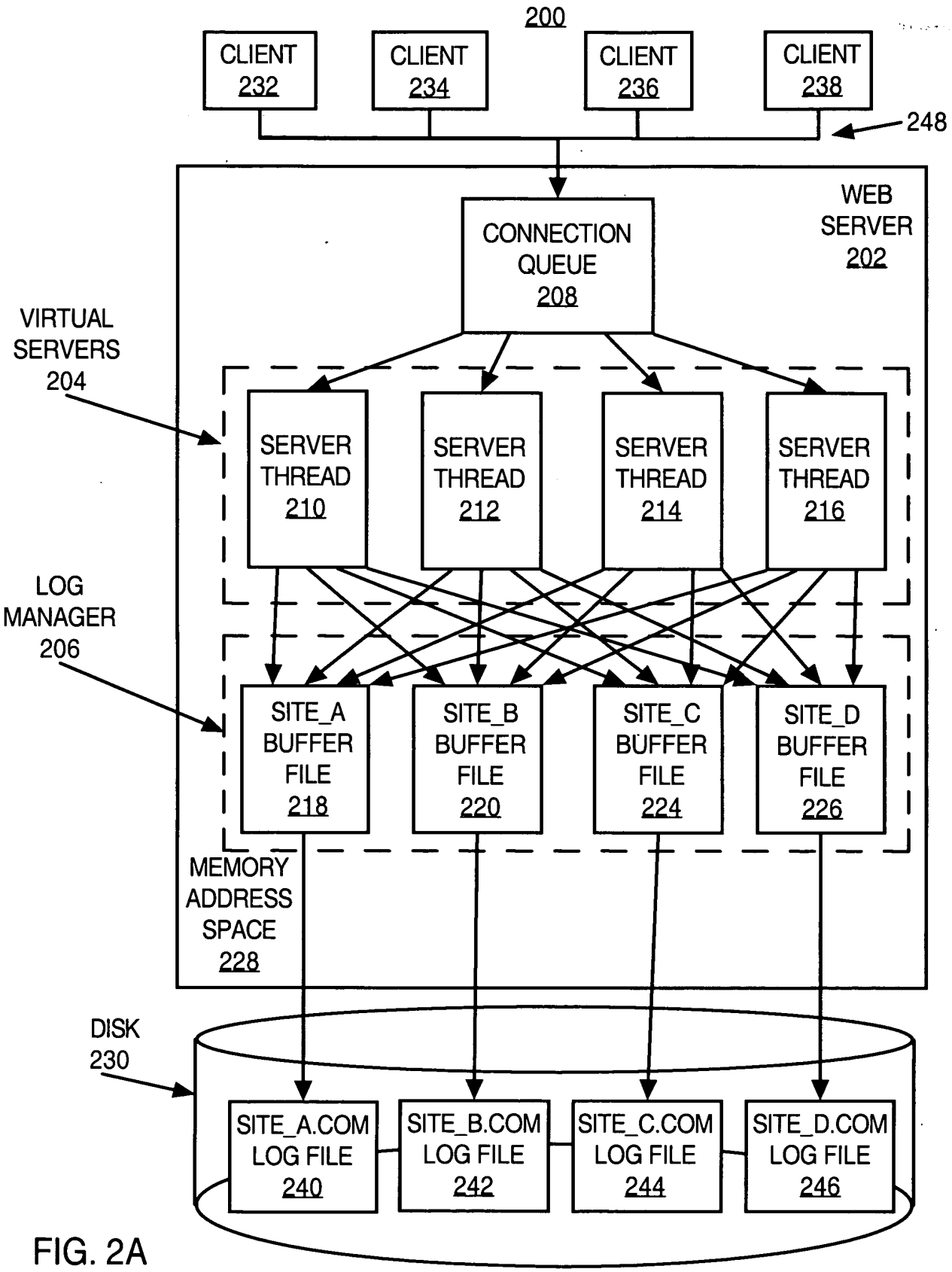
200
CLIENT 232
CLIENT 234
CLIENT 236
CLIENT 238
248
WEB SERVER 202
CONNECTION QUEUE 208
VIRTUAL SERVERS 204
SERVER THREAD 210
SERVER THREAD 212
SERVER THREAD 214
SERVER THREAD 216
LOG MANAGER 206
SITE_A BUFFER FILE 218
SITE_B BUFFER FILE 220
SITE_C BUFFER FILE 224
SITE_D BUFFER FILE 226
MEMORY ADDRESS SPACE 228
DISK 230
SITE_A.COM LOG FILE 240
SITE_B.COM LOG FILE 242
SITE_C.COM LOG FILE 244
SITE_D.COM LOG FILE 246

FIG. 2A

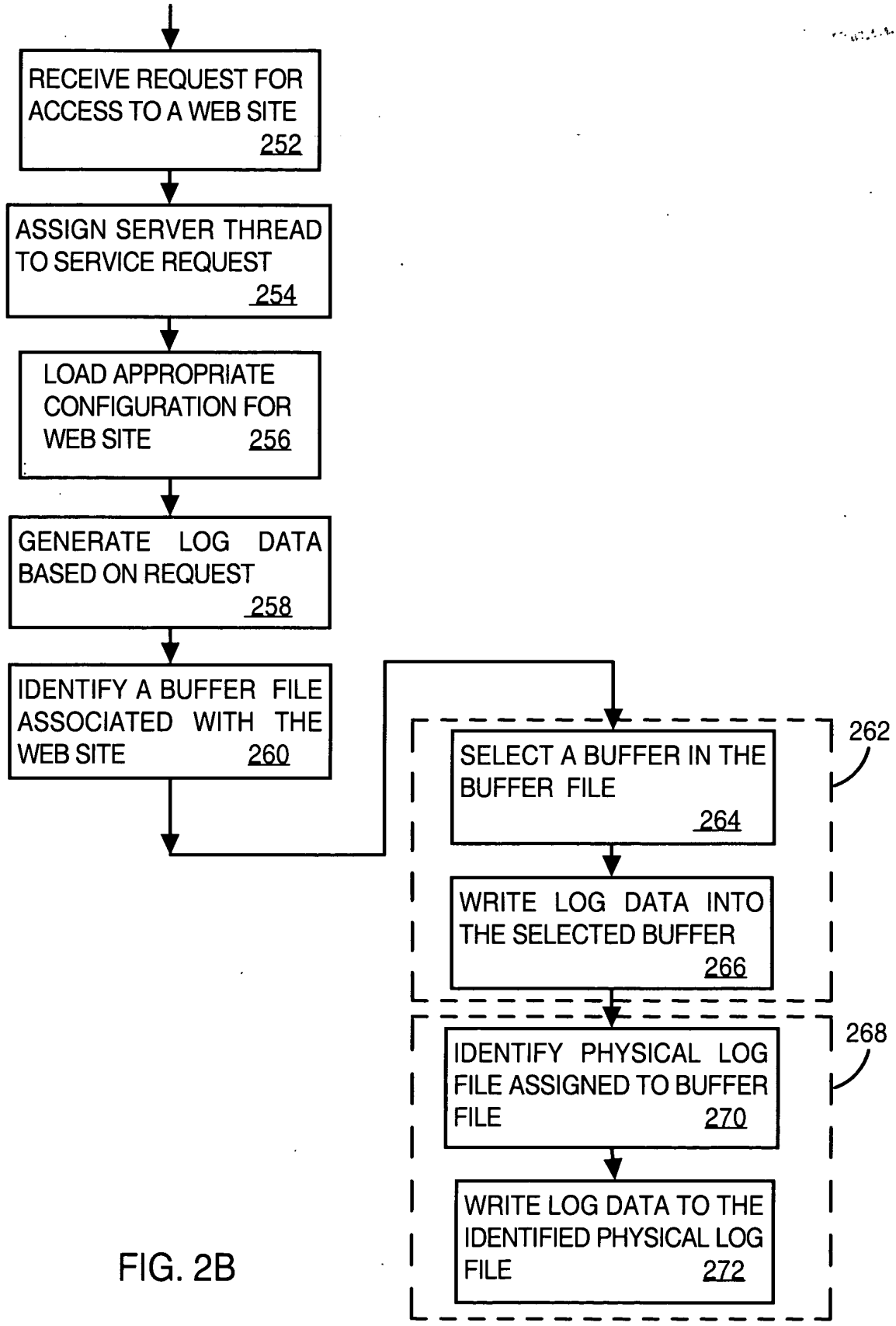
RECEIVE REQUEST FOR ACCESS TO A WEB SITE 252
ASSIGN SERVER THREAD TO SERVICE REQUEST 254
LOAD APPROPRIATE CONFIGURATION FOR WEB SITE 256
GENERATE LOG DATA BASED ON REQUEST 258
IDENTIFY A BUFFER FILE ASSOCIATED WITH THE WEB SITE 260
262
SELECT A BUFFER IN THE BUFFER FILE 264
WRITE LOG DATA INTO THE SELECTED BUFFER 266
268
IDENTIFY PHYSICAL LOG FILE ASSIGNED TO BUFFER FILE 270
WRITE LOG DATA TO THE IDENTIFIED PHYSICAL LOG FILE 272

FIG. 2B

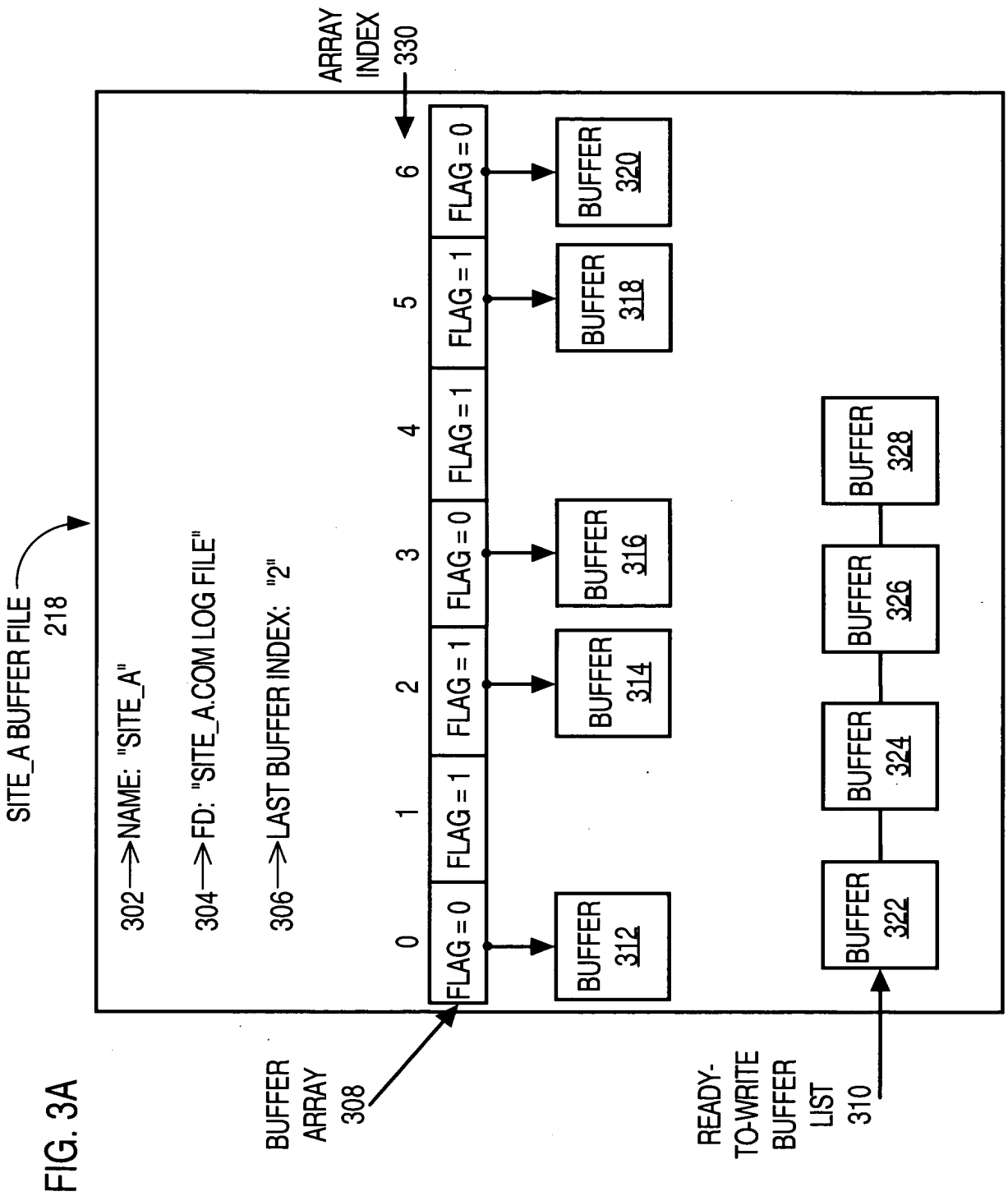
SITE_A BUFFER FILE
218
302 → NAME: "SITE_A"
304 → FD: "SITE_A.COM LOG FILE"
306 → LAST BUFFER INDEX: "2"
ARRAY INDEX
330
0
1
2
3
4
5
6
FLAG = 0
FLAG = 1
FLAG = 1
FLAG = 0
FLAG = 1
FLAG = 1
FLAG = 0
BUFFER 312
BUFFER 314
BUFFER 316
BUFFER 318
BUFFER 320
BUFFER 322
BUFFER 324
BUFFER 326
BUFFER 328
BUFFER ARRAY 308
READY-TO-WRITE BUFFER LIST 310

FIG. 3A

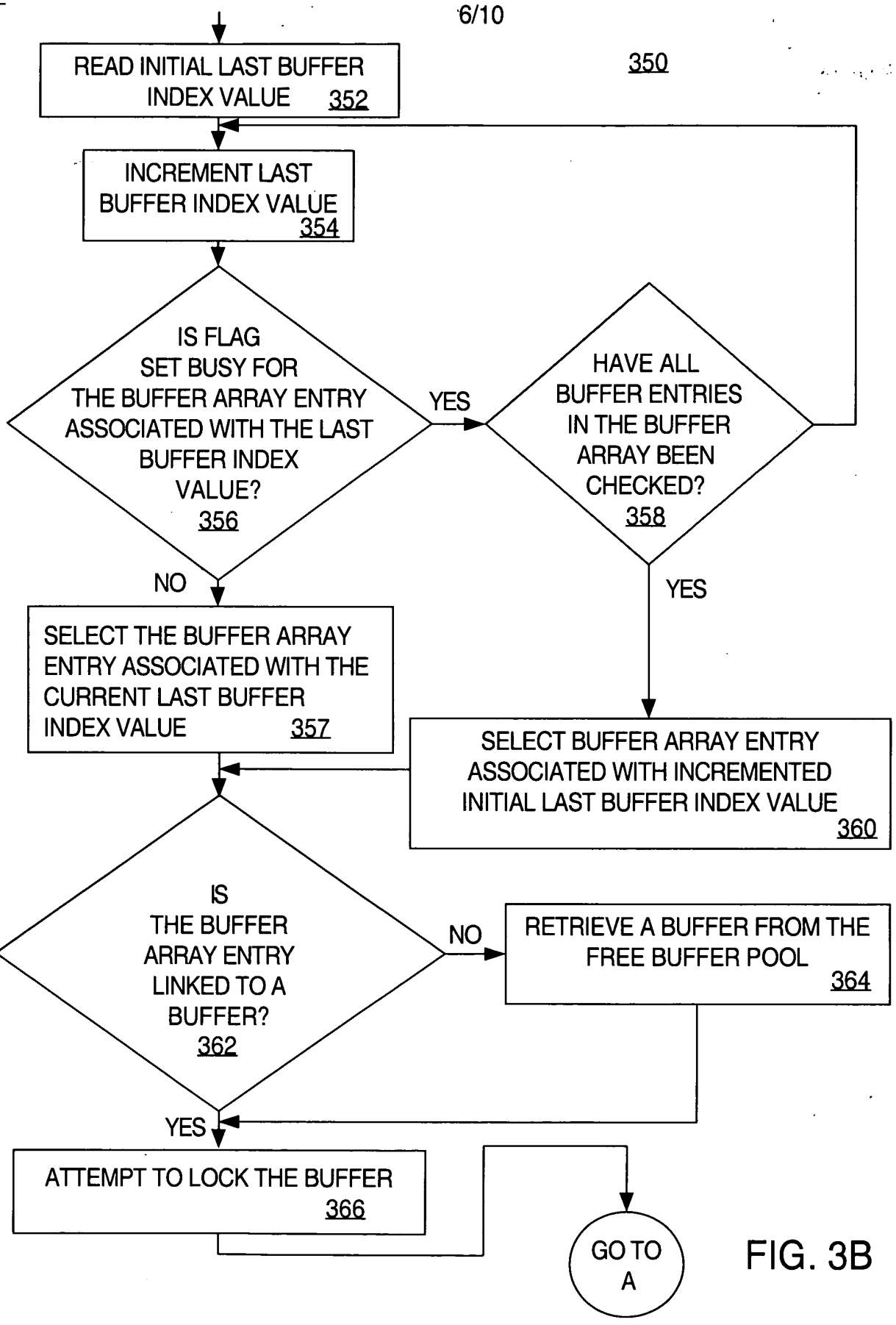
350
READ INITIAL LAST BUFFER INDEX VALUE 352
INCREMENT LAST BUFFER INDEX VALUE 354
IS FLAG SET BUSY FOR THE BUFFER ARRAY ENTRY ASSOCIATED WITH THE LAST BUFFER INDEX VALUE? 356
YES
HAVE ALL BUFFER ENTRIES IN THE BUFFER ARRAY BEEN CHECKED? 358
NO
YES
SELECT THE BUFFER ARRAY ENTRY ASSOCIATED WITH THE CURRENT LAST BUFFER INDEX VALUE 357
SELECT BUFFER ARRAY ENTRY ASSOCIATED WITH INCREMENTED INITIAL LAST BUFFER INDEX VALUE 360
IS THE BUFFER ARRAY ENTRY LINKED TO A BUFFER? 362
NO
RETRIEVE A BUFFER FROM THE FREE BUFFER POOL 364
YES
ATTEMPT TO LOCK THE BUFFER 366
GO TO A

FIG. 3B

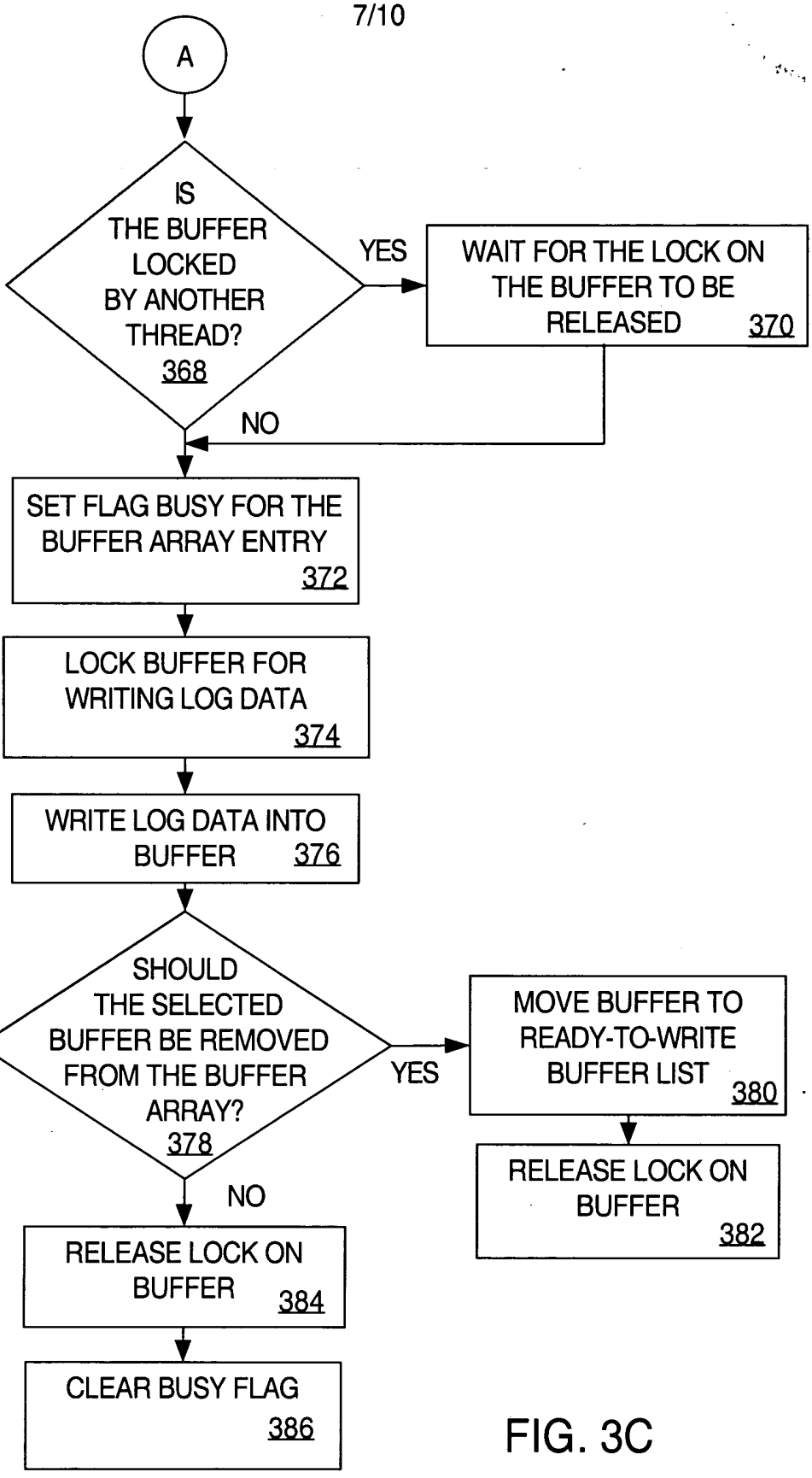
A
IS THE BUFFER LOCKED BY ANOTHER THREAD? 368
YES
WAIT FOR THE LOCK ON THE BUFFER TO BE RELEASED 370
NO
SET FLAG BUSY FOR THE BUFFER ARRAY ENTRY 372
LOCK BUFFER FOR WRITING LOG DATA 374
WRITE LOG DATA INTO BUFFER 376
SHOULD THE SELECTED BUFFER BE REMOVED FROM THE BUFFER ARRAY? 378
YES
MOVE BUFFER TO READY-TO-WRITE BUFFER LIST 380
RELEASE LOCK ON BUFFER 382
NO
RELEASE LOCK ON BUFFER 384
CLEAR BUSY FLAG 386

FIG. 3C

400

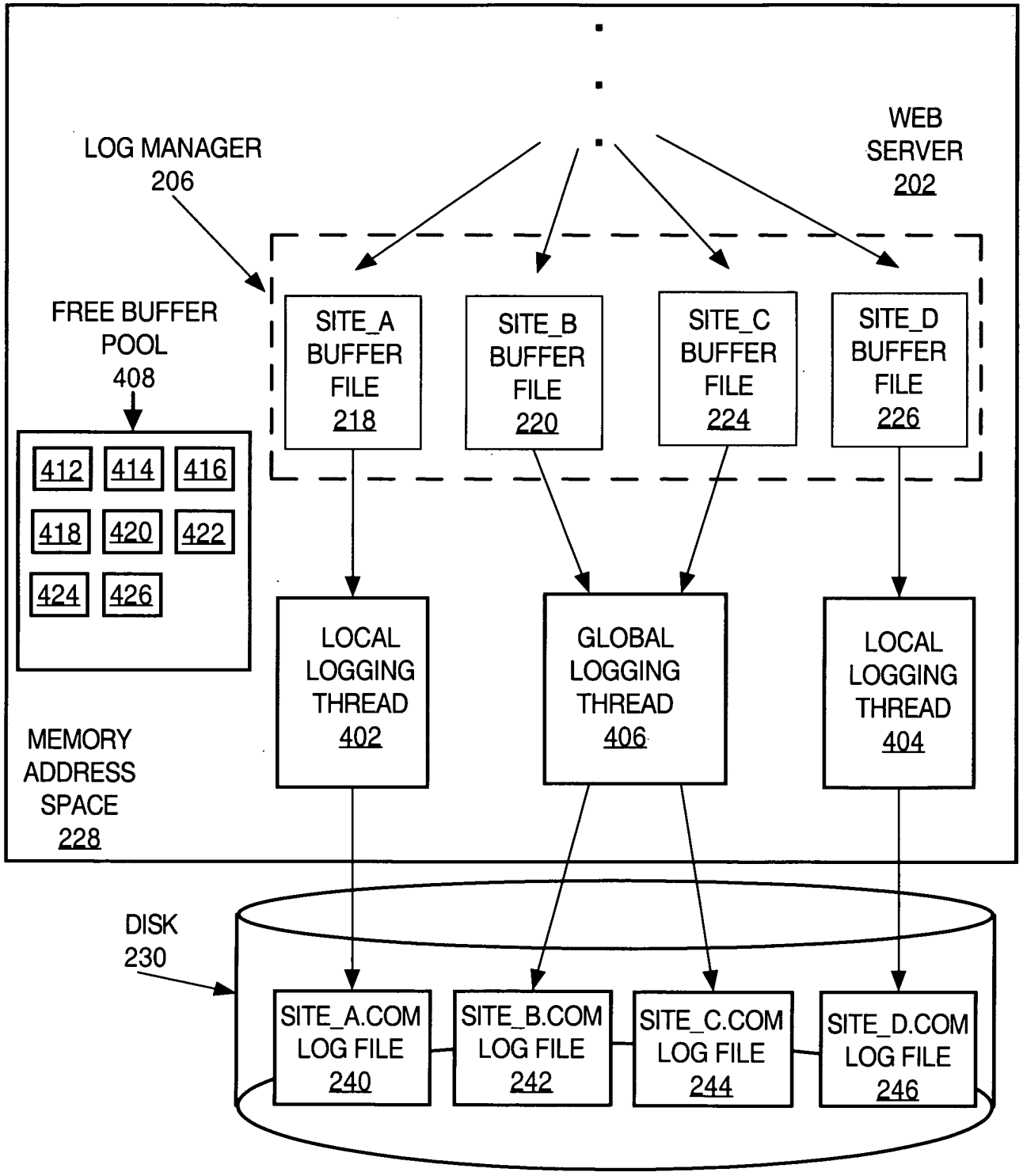
LOG MANAGER
206
WEB
SERVER
202
FREE BUFFER
POOL
408
412
414
416
418
420
422
424
426
SITE_A
BUFFER
FILE
218
SITE_B
BUFFER
FILE
220
SITE_C
BUFFER
FILE
224
SITE_D
BUFFER
FILE
226
LOCAL
LOGGING
THREAD
402
GLOBAL
LOGGING
THREAD
406
LOCAL
LOGGING
THREAD
404
MEMORY
ADDRESS
SPACE
228
DISK
230
SITE_A.COM
LOG FILE
240
SITE_B.COM
LOG FILE
242
SITE_C.COM
LOG FILE
244
SITE_D.COM
LOG FILE
246

FIG. 4A

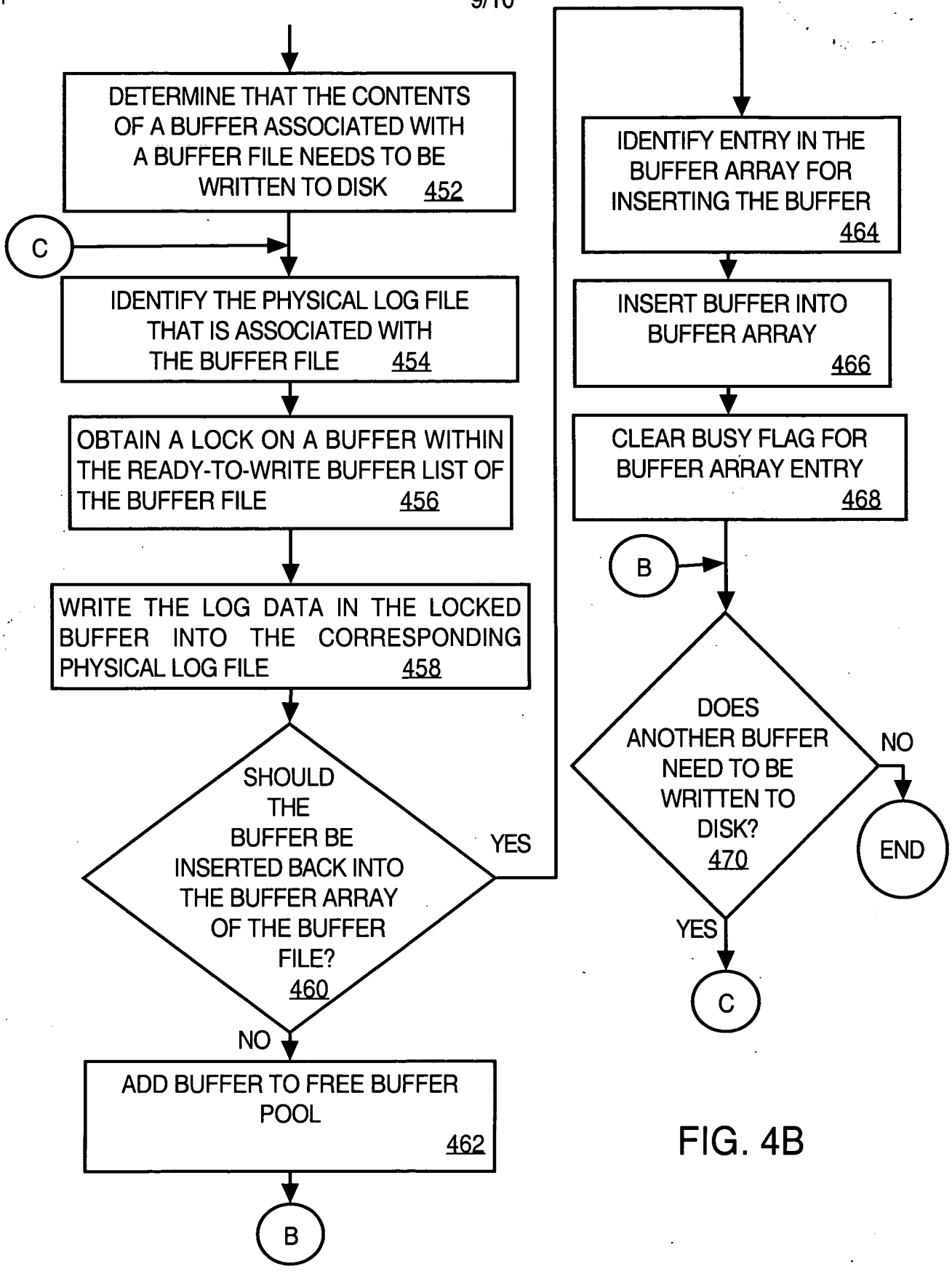
DETERMINE THAT THE CONTENTS OF A BUFFER ASSOCIATED WITH A BUFFER FILE NEEDS TO BE WRITTEN TO DISK 452
C
IDENTIFY THE PHYSICAL LOG FILE THAT IS ASSOCIATED WITH THE BUFFER FILE 454
OBTAIN A LOCK ON A BUFFER WITHIN THE READY-TO-WRITE BUFFER LIST OF THE BUFFER FILE 456
WRITE THE LOG DATA IN THE LOCKED BUFFER INTO THE CORRESPONDING PHYSICAL LOG FILE 458
SHOULD THE BUFFER BE INSERTED BACK INTO THE BUFFER ARRAY OF THE BUFFER FILE? 460
YES
NO
ADD BUFFER TO FREE BUFFER POOL 462
B
IDENTIFY ENTRY IN THE BUFFER ARRAY FOR INSERTING THE BUFFER 464
INSERT BUFFER INTO BUFFER ARRAY 466
CLEAR BUSY FLAG FOR BUFFER ARRAY ENTRY 468
B
DOES ANOTHER BUFFER NEED TO BE WRITTEN TO DISK? 470
NO
END
YES
C

FIG. 4B

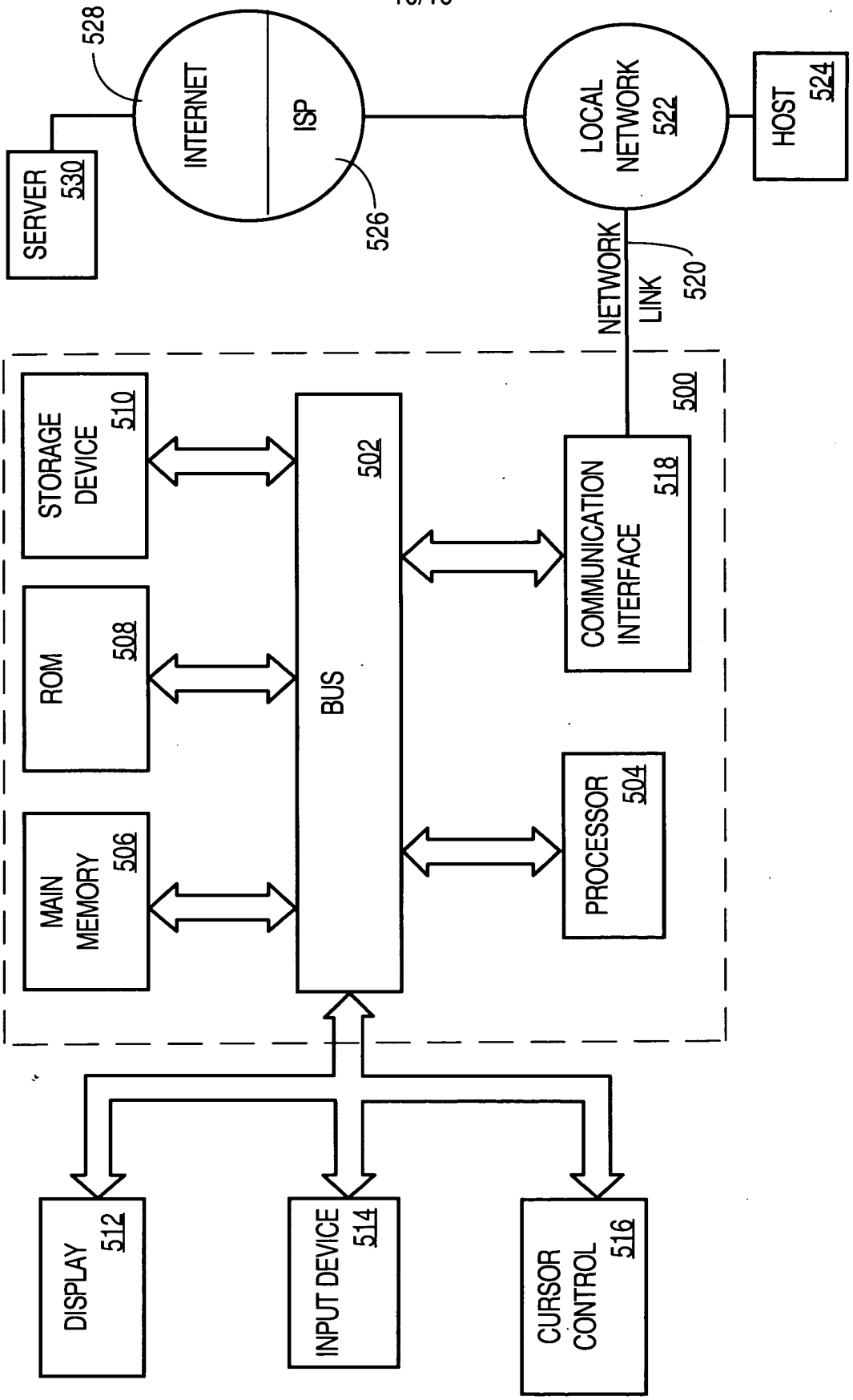
528
INTERNET
ISP
526
LOCAL NETWORK 522
HOST 524
SERVER 530
NETWORK LINK 520
500
STORAGE DEVICE 510
ROM 508
MAIN MEMORY 506
BUS 502
COMMUNICATION INTERFACE 518
PROCESSOR 504
DISPLAY 512
INPUT DEVICE 514
CURSOR CONTROL 516

FIG. 5